REMARKS

Please reconsider the present application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering the present application.

I. Disposition of Claims

Claims 1-15 are currently pending in the present application. By way of this reply, claims 1, 3, 7, and 11-14 have been amended and claim 2 has been canceled without prejudice or disclaimer.

II. Claim Amendments

Claim 1 has been amended to recite that shield control circuitry, after a transition on the signal path, generates a value on the first wire that causes a charge up of capacitance between the signal path and the first wire, wherein a subsequent transition on the signal path causes a discharge of capacitance between the signal path and the first wire. No new matter has been added by way of these amendments as support for these amendments may be found, for example, in original claim 2 of the present application.

Claim 13 has been amended to recite that a capacitor is charged by transitioning a wire to a second voltage potential. Further, claim 13 has been amended to remove the instance of the term "decoupling." No new matter has been added by way of this amendment as support for this amendment may be found, for example, in Figure 3b of the present application.

Claim 14 has been amended to remove the instance of the term "decoupling." No

new matter has been added by way of this amendment.

Further, claims 1, 3, 7, and 11-14 have been amended to include the term "path" after select instances of the term "signal." No new matter has been added by way of these amendments.

III. Objection(s)

Claims 1-3, 7, 11, and 12-14 were objected to as containing informalities. By way of this reply, these claims have been amended in accordance with the Examiner's suggestions. Accordingly, withdrawal of the objections to the claims is respectfully requested.

IV. Rejection(s) Under 35 U.S.C § 112

Claims 3 and 14 of the present application were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Particularly, the use of the term "decoupling capacitor" was held as not being described in the Specification in such a way as to enable one skilled in the art to make and/or use the claimed invention.

Although Applicant notes that the use of a "decoupling capacitor" is repeatedly referred to and described in the Specification (*see, e.g.*, paragraphs [0021], [0022], [0026], and [0027]), claims 3 and 14 have been amended to remove the term "decoupling." Accordingly, withdrawal of the § 112 rejections of claims 3 and 14 is respectfully requested.

V. Rejection(s) Under 35 U.S.C § 103

Claims 1-15 of the present application were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,596,506 issued to Petschauer et al. (hereinafter "Petschauer") in view of U.S. Patent No. 6,285,208 issued to Ohkubo (hereinafter "Ohkubo"). For the reasons set forth below, this rejection is respectfully traversed.

The present invention is directed to an improved technique for shielding signal wires. More particularly, embodiments of the present invention relate to driving a signal on a signal path such that only capacitance discharge events occur between the signal path and shield wires adjacent to the signal path. The discussion below describes embodiments of the present invention with reference to the exemplary embodiment of the present invention shown in Figure 3a of the present application.

Low to High Transition

When the signal driver **40** drives a signal on signal path **42** to go from logic "0," i.e., "low," to logic "1," i.e., "high," shield control circuitry **48** subsequently (i.e., delayedly) drives a "low" onto shield wires **44**. Thus, when the signal driver **40** drives the signal on signal path **42** back "low," a discharge of capacitors **46** occurs due to the signal path **42** and the shield wires **44** being at substantially the same voltage potential. Those skilled in the art will recognize that a capacitor is charged as the voltage potential across the capacitor increases and is discharged as the voltage potential across the capacitor decreases.

High to Low Transition

When the signal driver **40** drives a signal on signal path **42** to go from logic "1," i.e., "high," to logic "0," i.e., "low," shield control circuitry **48** subsequently (i.e., delayedly) drives a "high" onto shield wires **44**. Thus, when the signal driver **40** drives the signal on signal path **42** back "high," a discharge of capacitors **46** occurs due to the signal path **42** and the shield wires **44** being at the substantially the same voltage value.

Accordingly, as discussed above, the signal driver **40** only participates in discharge events. In other words, the transitioning of the signal on signal path **42** does not cause the build up of capacitance between the signal path **42** and shield wires **44**; instead, the transitioning of the signal on signal path **42** results in the discharge of capacitance between the signal path **42** and shield wires **44**. For example, as shown in Figure 3b of the present application, the transitioning **60**, **64** of the signal on signal path **42** always causes a discharge of capacitors **46**.

Amended independent claim 1 of the present application requires, in part, that shield control circuitry, after a transition on the signal path, generate a value on the first wire that causes a charge up of capacitance between the signal path and the first wire, where a subsequent transition on the signal path causes a discharge of capacitance between the signal path and the first wire.

Amended independent claim 12 of the present application requires, in part, that a shielding control means actively control shield wires such that driving means generating a signal on a signal path shielded by the shield wires only participates in discharge events.

Amended independent claim 13 of the present application requires, in part, that

after a signal on a signal path has transitioned to a first voltage potential, a capacitor be charged by transitioning a shield wire to a second voltage potential so that when the signal on the signal path transitions to the second voltage potential, the capacitor is discharged.

With respect to Petschauer, the Office Action dated April 21, 2004 specifically states that Petschauer fails to disclose the use of shield control circuitry. Instead, Ohkubo is relied on as disclosing the shield limitations of the claimed invention. However, as disclosed below, Ohkubo clearly fails to disclose, or otherwise teach, the limitations of the claimed invention not disclosed in Petschauer.

Ohkubo is directed to a technique for ensuring that a capacitance accompanies a signal for connecting circuit blocks in an integrated circuit. *See* Ohkubo, column 4, lines 20 -25. The Examiner relies on Figures 5, 10, and 11 as disclosing "how effective shielding an IC circuits can be accomplished using [Ohkubo's] shielding methodology." *See* Office Action of April 21, 2004, page 4. However, these figures, along with the remaining portions of Ohkubo, do not show shield control circuitry that drives a value onto a shield wire after the transitioning of a signal shielded by the shield wire such that a subsequent transitioning of the signal will result in a discharge event as required by the claimed invention.

Figures 6A-6I of Ohkubo show the behavior of the signals **F1**, **F2**, **F3**, **F4**, and **F5** and shields **S1**, **S2**, **S3**, and **S4** shown in Figure 5 of Ohkubo. In Figures 6A-6I of Ohkubo, only signals **F2** and **F4** transition. When signal **F2** transitions "low," its shield wires **S1** and **S2** transition "low" with it; thereby, no charge of capacitance is built up for discharge when signal **F2** subsequently transitions back "high." Thus, the transitioning

of signal **F2** does not result in a discharge event.

Still referring to Figures 6A-6I of Ohkubo, when signal **F4** transitions "high," its shield wires **S3** and **S4** transition "high" with it; thereby, no charge of capacitance is built up for discharge when signal **F4** subsequently transitions back "low." Thus, the transitioning of signal **F4** does not result in a discharge event.

Similarly, with respect to Figures 7A-7C of Ohkubo, when signal **F4** transitions "high," (i) its shield **S3** is already "high" and remains "high;" thereby, no charge of capacitance between signal **F4** and shield **S3** is built up for discharge when signal **F4** subsequently transitions back "low," and (ii) its shield **S4** transitions "high" with it; thereby, no charge of capacitance between signal **F4** and shield **S4** is built up for discharge when signal **F4** subsequently transitions back "low."

With respect to Figures 10 and 11 of Ohkubo, the behavior of the signal wires and the shield wires is identical to that described above with reference to Figure 5 of Ohkubo.

It is clear to one skilled in the art that Ohkubo, even in its broadest interpretation, fails to disclose the claimed invention. Namely, Ohkubo does not disclose driving a value onto a shield wire *after* a signal shielded by that shield wire transitions such that when the signal transitions again, a discharge event occurs due to the signal and the shield wire being at substantially the same voltage potential. Thus, Ohkubo clearly fails to disclose all the limitations of amended independent claims 1, 12, and 13 of the present application or supply that which Petschauer lacks.

In view of the above, Petschauer and Ohkubo, whether considered separately or in combination, fail to show or suggest the present invention as recited in amended independent claims 1, 12, and 13 of the present application. Thus, amended independent

claims 1, 12, and 13 of the present application are patentable over Petschauer and Ohkubo. Dependent claims are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

VI. Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places the present application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 03226.158001;P6867).

Respectfully submitted,

Date: 9/17/04

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